



Virginia

# COASTAL MANAGEMENT

Protecting, Restoring, Strengthening Our Coastal Ecosystems & Economy

Fall 2002/Winter 2003



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**Laura McKay**

Virginia's Coastal Resources Management Program links state, local, and federal efforts to create more vital and sustainable coastal communities and ecosystems. Virginia's coastal zone includes the 29 counties and 15 cities of Tidewater Virginia, and all tidal waters out to the three mile territorial sea boundary. The program includes state laws and policies to protect and manage Virginia's coastal resources, implemented by the Departments of Environmental Quality, Chesapeake Bay Local Assistance, Conservation and Recreation, Game and Inland Fisheries, and Health, and the Marine Resources Commission. The Department of Environmental Quality serves as the lead agency for the program.

## Message From the Program Manager.....

It was a busy fall and we at the Coastal Program have much to be thankful for and to celebrate. Although state budget woes and the dreadful drought dampened spirits, our federal funds have continued to flow in and allow us to do some terrific things.

We are very excited about our new focal area – for the next three years the program will direct significant funding to the Seaside Heritage Program. This program will be restoring habitats, developing management tools and promoting sustainable ecotourism and aquaculture practices on the seaside of Virginia's Eastern Shore. The potential for eelgrass restoration in the barrier island lagoon system appears huge and despite our aching arms and fingers (see picture at left), we were able to broadcast 1.8 million seeds in shallow water landward of Wreck Island (see p.2 for more information).

We are also very proud to have been selected as semifinalists in the Innovations in American Government Award from Harvard University's Kennedy School of Government. The award is for our previous focal area – the Virginia Oyster Heritage Program (see p. 14).

For the first time ever, all the positions designated to the Coastal Program are filled with the addition of Shep Moon (see p. 17). Shep's depth of experience in Virginia coastal management issues will be a tremendous contribution to the program.

And finally, thanks to the efforts of our Coastal Policy Team and Governor Warner, the Coastal Program has, for the first time since its creation in 1986, a nicely revamped Executive Order. This EO consolidates the program's previous 25, sometimes conflicting goals and objectives, into 10 compatible goals (see p. 1). Our work is well cut out for us as we strive to attain these goals. With your help and support it is possible.

## Virginia Coastal Management Fall 2002/Winter 2003

### Virginia Department of Environmental Quality

**Robert Burnley, Director**  
Virginia Department of Environmental Quality  
(804) 698-4020  
rgburnley@deq.state.va.us

**Michael Murphy,**  
Director, Division of Environmental Enhancement  
(804) 698-4003  
mpmurphy@deq.state.va.us

### Office of the Virginia Coastal Program

**Laura McKay**  
Virginia Coastal Program Manager  
(804) 698-4323  
lbmckay@deq.state.va.us

**Virginia Witmer**  
Outreach Coordinator  
(804) 698-4320  
vgwitmer@deq.state.va.us

**Shepard Moon**  
Coastal Planner  
(804) 698-4527  
hsmoon@deq.state.va.us

**Kendell Jenkins**  
Coastal Specialist  
(804) 698-4537  
kdjenkins@deq.state.va.us

**Julie Bixby**  
Coastal Planner  
(804) 698-4333  
jabixby@deq.state.va.us

**Diane Barns**  
Coastal Program Assistant  
(804) 698-4051  
dcbarns@deq.state.va.us

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Cover Photo: Ecotourism by sunset. The schooner Serenity takes visitors out into the Cape Charles Harbor to look for and learn about dolphins and rays in the water, and loons, cormorants, gulls and other seabirds above the water. The Serenity is a 63-foot gaff rigged three-masted schooner built for the cargo trade and recently renovated by skippers and ecotour guides, Greg and Laura Lohse. Photo by Dwight Dyke. Photo above by Virginia Witmer.



# Governor Warner Signs New Executive Order Continuing Virginia's Coastal Program

On June 26, 2002 Governor Mark Warner signed a new Executive Order #23 that continues the Virginia Coastal Program until June 2006. The Coastal Program's Policy Team (representatives of all the member agencies) with assistance from the Virginia Institute of Marine Science spent some time under the auspices of a Coastal Program grant assessing the old 25 goals and objectives of the Program. These were subsequently condensed and streamlined into the 10 goals you see below. These 10 goals will now provide the outline for reporting on Coastal Program accomplishments and become the basis for choosing Coastal Indicators for our Biennial Review Process and State of the Coast Report. The full text of the new EO can be viewed at: [www.governor.state.va.us](http://www.governor.state.va.us).

With this order, the Governor directs all state agencies to carry out their legally established duties consistent with this Program and in a manner that promotes coordination among all government agencies. The order also prescribes a conflict resolution process that directs DEQ, as the lead agency for the Coastal Program, to monitor all state actions affecting Virginia's coastal resources and to resolve any inconsistencies with the Coastal Program goals. Below are excerpts from Executive Order #23.

## POLICY GOALS

State agencies having responsibility for the Commonwealth's coastal resources shall promote the Coastal Resources Management Program consistent with the following goals:

### Coastal Resource Protection

**Goal 1.** To protect and restore coastal resources, habitats, and species of the Commonwealth. These include, but are not limited to, wetlands, subaqueous lands and vegetation, sand dune systems, barrier islands, underwater or maritime cultural resources, riparian forested buffers, and endangered or threatened species.

**Goal 2.** To restore and maintain the quality of all coastal waters for human and ecosystem health through protection from adverse effects of excess nutrients, toxics, pathogens, and sedimentation.

**Goal 3.** To protect air quality.

**Goal 4.** To reduce or prevent losses of coastal habitat, life, and property caused by shoreline erosion, storms, and other coastal hazards in a manner that balances environmental and economic considerations.

### Coastal Resource Sustainable Use

**Goal 5.** To provide for sustainable wild fisheries and aquaculture.


**Goal 6.** To promote sustainable ecotourism and to increase and improve public access to coastal waters and shorefront lands compatible with resource protection goals.

**Goal 7.** To promote renewable energy production and provide for appropriate extraction of energy and mineral resources consistent with proper environmental practices.

## Coastal Management Coordination

**Goal 8.** To ensure sustainable development on coastal lands and support access for water-dependent development through effective coordination of governmental planning processes.

**Goal 9.** To avoid and minimize coastal resource use conflicts through research, planning, and a forum for coordination and facilitation among government agencies, interest groups, and citizens.

**Goal 10.** To promote informed decision-making by maximizing the availability of up-to-date educational information, technical advice, and scientific data. 

## Virginia Coastal Resources Management Program Implementation and Enforcement

The following agencies have primary responsibility for implementing the enforceable policies of Virginia's Coastal Program as approved by the National Oceanic and Atmospheric Administration:

*Responsible Agency and Enforceable Policies—*

### Department of Environmental Quality (DEQ)

point source water pollution management; nontidal wetlands management; air pollution control

### Department of Conservation and Recreation (DCR)

nonpoint source pollution management

### Marine Resources Commission (MRC)

primary sand dunes management; tidal wetlands management; subaqueous lands management; and marine fisheries management

### Department of Game and Inland Fisheries (DGIF)

inland fisheries management

### Department of Health

shoreline sanitation

### Chesapeake Bay Local Assistance Department

coastal lands management

### The following agencies are responsible for assisting with the program:

Department of Historic Resources  
Department of Forestry  
Department of Agriculture and Consumer Services  
Virginia Institute of Marine Science  
Department of Transportation  
Virginia Economic Development Partnership





# COASTAL NETWORK IN ACTION

## Virginia's Seaside Heritage Program: Hope Revived for Our Seaside Treasure

By Laura McKay

Most Virginians would probably say the Chesapeake Bay is our greatest coastal resource. That may be true - the Bay is magnificent. But we are blessed with another, less famous, but equally worthy, coastal treasure: the seaside of our Eastern Shore. Today it is practically a coastal wilderness but it hasn't always been that way.

British colonists landed there. Blackbeard and his pirates hid out there. By the 1800's this seaside barrier island lagoon system was a renowned playground for hunting, fishing, and recreating for people from Washington DC to New York. Unimaginable numbers of oysters, scallops, finfish and waterfowl were devoured from its seemingly limitless cornucopia. But all that changed when the horrendous hurricanes and storms of the late 1800's and early 1900's hit. Eventually all was lost, the cottages, hunt clubs, resorts and small communities. And by the 1930's even the natural resources.... the shellfish, underwater grasses, and birds ....were decimated. As so simply stated on the gravestone of Hog Island resident, Maggie Simpson (1844-1914), "How many hopes lie buried here." [For a wonderful history of this area read "Seashore Chronicles: Three Centuries of the Virginia Barrier Islands" by Brooks Miles Barnes and Barry R. Truitt.]

It's been fairly quiet on the Seaside since the Great Depression. Have we learned our lesson to stay away from places so wild and at the mercy of the "sleepless Atlantic?" Or has it been the foresight of the federal and state government and The Nature Conservancy that in buying up and preserving these wild places, we have stayed away? Whichever the reason, sadly, over the past 30 years, we have not seen a great resurgence of underwater grasses, oysters, scallops, finfish and birds. So we wonder why. Why in the face of costly conservation efforts have the resources not rebounded?



*The Piping Plover nests on the beaches of Virginia's barrier islands. It has remained on the federal endangered species list since 1986 and is threatened by human disturbance, mammalian predation and habitat loss. Photo courtesy of U.S. Fish and Wildlife Service.*



*Argopecten (Aequipecten) irradians-Bay Scallop. Seagrass is a critical element in the life of a Bay Scallop, which boasts a row of cobalt blue eyes along the margin of its shell. As seagrass beds disappeared on the Eastern Shore, so did the Bay Scallop. Photo courtesy of Virginia Institute of Marine Science.*

Some reasons are coming to light and some scientists believe we have reason to hope. (Take heart Maggie Simpson!) Through the efforts of our Oyster Heritage Program on the seaside, we were seeing that small scale experiments with scattering eelgrass seed were actually taking root and flourishing. And the oyster reefs on the seaside were also doing well. So our interagency Coastal Policy Team decided to make the Seaside our next "focal area." On September 19 at The Nature Conservancy's Cobb Island Station, not far from where Mag-



*Virginia Seaside Heritage Program Kick-Off participants listen as Laura McKay, Virginia Coastal Program Manager, explains the goals of the Virginia Seaside Heritage Program. Among the attendees were Virginia Delegate Bob Bloxom, Northampton County Administrator Lance Metzler, Northampton County Supervisor Jack White, and Accomack County Administrator Keith Bull. Photos by Barry Truitt, TNC.*



gie Simpson's gravestone was found, the Coastal Program and its partners officially kicked off the Seaside Heritage Program. This three-year program has four elements:

**Development of a comprehensive seaside inventory of natural resources and human use patterns that would form the basis for long term restoration and management strategies:**

This will be a main focus during Year One. Program partners will develop and compile the following data layers: underwater bottom types suitable for aquaculture, prey availability and bird habitat needs; existing and potential SAV and oyster reef sites for continued restoration; bird data (e.g., migration, nesting and foraging habitats) and predator tracking; existing water quality data and development of a process for continued collection; identification of critical *Phragmites* invasion sites and rare and threatened marsh vegetation; and existing and potential public access sites for ecotourism.

**Restoration of underwater grasses, scallops, oyster reefs, marshes and shorebird habitats:**

During Year One, seagrass restoration will be "ramped up" from the experimental stages to a larger scale employing the new, low-tech method of "seed broadcasting." As grass beds become established, scallops may naturally recolonize the areas. Juvenile bay scallops attach themselves to blades of seagrass for a short period of their development before they become free-swimming. Oyster reef construction will continue. After finalizing data and maps on the extent of *Phragmites* invasion into the seaside marshes, efforts will

*Continued on page 11*



*Seagrass is home to many other living creatures. It plays a pivotal role in the unique lifecycle of the Blue Crab. Restored seagrass beds on the seaside could enable the return of many other species. Photo by Virginia Witmer.*

## Seaside Heritage Program Area



### PROGRAM PARTNERS

**State Agencies**  
Virginia Coastal Program  
Department of Environmental Quality  
Department of Conservation and Recreation  
Department of Game and Inland Fisheries

Marine Resources Commission  
Virginia Museum of Natural History  
Department of Transportation

**Local/Regional Governments**  
Accomack-Norhampton Planning District Commission  
Accomack County  
Town of Chincoteague  
Town of Wachapreague  
Northampton County

**Federal Agencies**  
Army Corps of Engineers  
National Oceanic and Atmospheric Administration - Office of Ocean and Coastal Resource Management  
US Fish and Wildlife Service  
Chincoteague National Wildlife Refuge  
Eastern Shore of Virginia National Wildlife Refuge  
Gloucester Field Office

**Private Organizations**  
Cherrystone Aquafarms  
The Nature Conservancy - Virginia Chapter

**Academic Institutions**  
College of William and Mary - Virginia Institute of Marine Science  
Virginia Chesapeake Bay National Estuarine Research Reserve  
Center for Conservation Biology  
University of Virginia  
Virginia Commonwealth University

For more information about the Virginia Seaside Heritage Program visit [www.deq.state.va.us/coastal](http://www.deq.state.va.us/coastal) or contact Laura McKay at 804 698-4323.

Scopes of work for each program element will be posted on our Web site as they become available.



# In the Middle Peninsula, It's the Year of the Dragon Every Year



By David Fuss and Julie Bixby

A state aquatic biologist calls it one of the best freshwater tidal systems remaining in the Chesapeake Bay. A Smithsonian Institute Report recognized it as the most pristine watershed in Virginia. A university researcher describes studying the fish assemblages here something akin to looking into a 100-year old time capsule. The Nature Conservancy declares it a uniquely functioning eco-region of biodiversity and ranks it as a high priority for protection. Bald Eagles, 20 species of rare plants and animals, and approximately 2,330 people call it home. It is the Dragon Run Watershed, where life still centers on traditional land uses such as hunting, fishing, agriculture and forestry, and a canoe or kayak trip takes you into a lushly vegetated world far from the hustle and bustle of Virginia's cities and suburbs.



*Photo by David Fuss, MPPDC.*

The Dragon Run is not only treasured for its central role in the Middle Peninsula's natural and cultural identity, it is also a geographic centerpiece. The watershed expands outward from a 40-mile fresh and brackish water stream which runs through Essex, Gloucester, King and Queen and Middlesex Counties, encompassing 90,000 acres or 140 square miles.

Its expansive acreage aside, the future of the watershed is a growing concern. The same richness and diversity of resources valued by those living in, studying and visiting the watershed makes it susceptible to the pressures of unsustainable development. A new plan is now being developed to help guide what lays ahead for this exceptional wilderness area.

The Dragon Run Special Area Management Plan, although unique in its area of focus, is not the first plan of its kind. Special Area Management Plans (SAMPs) have been a tool used by the Virginia Coastal Program in two other significant coastal areas in the Commonwealth – the Southern Watersheds of cities of Virginia Beach and Chesapeake and on Virginia's Eastern Shore (Northampton County.) The Virginia Coastal Program's SAMPs are authorized and fully funded by the National Oceanic and Atmospheric Administration through the federal Coastal Zone Management Act.

## Goals of the Dragon Run SAMP

### GOAL I

Establish a high level of cooperation and communication between the four counties within the Dragon Run Watershed to achieve consistency across county boundaries.

#### Objective A

Develop a plan to address the inevitable future development pressure to change the traditional use of land in the Dragon Run Watershed.

#### Objective B

Achieve consistency across county boundaries among land use plans and regulations in order to maintain farming and forestry and to preserve natural heritage areas by protecting plants, animals, natural communities, and aquatic systems.

#### Objective C

Provide ongoing monitoring of existing plans and planning tools in order to assess traditional land uses and watershed health and take action necessary to preserve the watershed.

#### Objective D

Comprehensively implement Best Management Practices (BMPs) for water quality, wildlife habitat, and soil conservation.

### GOAL II

Foster educational partnerships and opportunities to establish the community's connection to and respect for the land and water of the Dragon Run.

#### Objective A

Encourage experience-based education consistent with the Stewardship and Community Engagement goals of the Chesapeake 2000 Agreement.

#### Objective B

Promote the community and economic benefits of the Dragon Run derived from its natural characteristics and traditional uses such as farming, forestry, hunting and fishing.

### GOAL III

Promote the concept of landowner stewardship that has served to preserve the Dragon Run Watershed as a regional treasure.

#### Objective A

Address the potential dilemma of preserving the watershed's sense of peace and serenity by protecting open space and reducing fragmentation of farms, forests, and wildlife habitat versus the landowners' rights in determining or influencing future land use.

#### Objective B

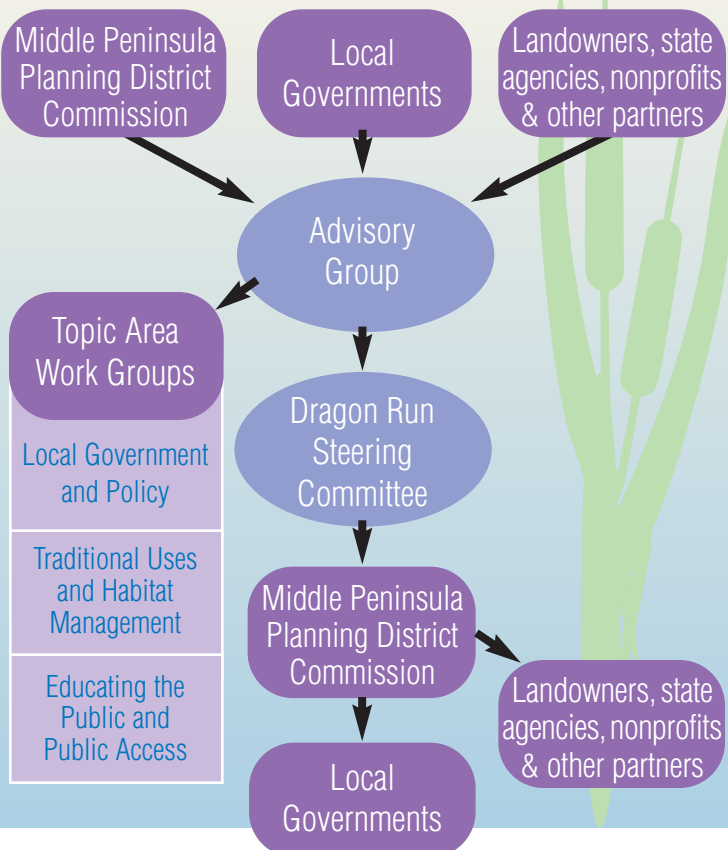
Educate landowners about the regional importance of the Dragon Run.

SAMPs are designed to protect significant coastal resources when all levels of government are committed to a collaborative planning process that produces enforceable environmental protection policies. SAMPs are often used in areas that are already under tremendous development pressure. The Dragon Run SAMP is being put in place before significant environmental damage has occurred. This requires foresight on the part of the people involved with the SAMP to develop progressive policies and recommendations that will preserve the quality of life in the Dragon Run, while steering the area towards development that sustains that quality of life.

“The mission of the Dragon Run SAMP is to support and promote community-based efforts to preserve the cultural, historic, and natural character of the Dragon Run, while preserving property rights and the traditional uses within the watershed,” explains David Fuss, the SAMP’s Project Manager at the Middle Peninsula Planning District Commission (MPPDC). The Dragon Run Steering Committee, formed as a committee of the MPPDC in 1985, and its SAMP Advisory Group have developed a series of goals and objectives (see textbox at left). The Steering Committee consists of one elected official and two landowners from each of the four counties in the watershed. The Dragon Run SAMP Advisory Group represents a cross-section of the community, including Steering Committee members, other landowners, business/industry, nonprofits, state agencies, and educators.

The Dragon Run SAMP Advisory Group, via three work groups (see flow chart at below), is developing action plans to achieve the SAMP’s goals and objectives. These action plans will be delivered as

## Organizational Map of Dragon Run SAMP



*Tributary stream in Dragon Run Watershed near site of acquisition in King and Queen County. Photo by David Fuss, MPPDC.*

## Coastal Program Acquires Piece of the Dragon for Reserve System

A 121-acre tract along the Dragon Run in King and Queen County has been purchased through a Virginia Coastal Program grant and will be incorporated into the Virginia Estuarine and Coastal Research Reserve System. The tract includes approximately 3000 feet of riverfront, 75 acres of 20-23 year old loblolly pine forest, 3 acres of mixed pine-hardwood, and 43 acres of forested wetlands. The tract also boasts hardwood swamps of cypress, gum, sycamore, river birch and red maple. The College of William and Mary holds title to the parcel, which will be used for research, long-term monitoring and education. It will be managed by the Virginia Institute of Marine Science in coordination with Chesapeake Bay National Estuarine Research Reserve Program.

recommendations to the Dragon Run Steering Committee. The plans will ultimately be presented to the MPPDC and the four county governments for consideration. The action plans may include: changes to local zoning ordinances; amendments to local comprehensive plans; development and distribution of educational materials; promotion of the community benefits of natural resources, farming, and forestry; and natural resource data collection to support the development and implementation of action plans.

The Dragon Run Special Area Management Plan is more than a significant coastal management tool. SAMPs can be a process as organic and subject to evolution as the resources they protect. The Dragon Run SAMP is an opportunity to educate citizens about the watershed in which they live - the impacts they have on the watershed and the watershed has on them. Informed, involved and committed citizens are critical to the success of the Dragon Run SAMP. The final goal of this and all SAMPs is the best possible future for all communities, both human and natural.

For more information, please see the SAMP Web site at [www.mppdc.com/projects/dragonSAMP.htm](http://www.mppdc.com/projects/dragonSAMP.htm) or contact David Fuss at 804-758-2311 or [mppdc@inna.net](mailto:mppdc@inna.net).

# NEWS AROUND THE ZONE

## Virginia Coastal Program Distributes Over 3 Million in 2002 Grant Funds

On October 1, 2002, the Virginia Coastal Program received \$3,110,000 from NOAA's Office of Ocean and Coastal Resource Management. The \$3 million will go to state agencies and Tidewater local governments for projects which enhance and protect Virginia's coastal resources. State agencies and local governments will match the award with \$2,570,000 in cash or in-kind services.

This year's award includes funding for 39 projects. Our project list includes funds for general program support, for Coastal Program staff at DEQ as well as at other Coastal Program Partner agencies in both state and local

government. In 2002–2003, we will also continue to support projects like the Dragon Run SAMP (see page 4), and our Dunes project. The Dunes project, managed through VIMS, focuses on reviewing and analyzing the options available for better protection for our primary and secondary dune systems throughout Virginia.

A few new additions to the project list in 2002 include: the Seaside Heritage Program (see page 2); support for the Nontidal Wetlands Program at DEQ; and several Coastal Nonpoint projects focused on stream assessment and restoration (see page 16).

To view the full project list for 2002, please visit the Coastal program Web site at [www.deq.state.va.us/coastal/funding.html](http://www.deq.state.va.us/coastal/funding.html).

### Coastal Grants Support Localities Affected By Budget Cuts

As a result of a \$1,000,000 cut by the 2002 General Assembly to the Chesapeake Bay Local Assistance Department (CBLAD) budget line item earmarked for coastal localities, Coastal Program staff at the Department of Environmental Quality and staff from the Department of Conservation and Recreation have been working with CBLAD to develop a one-time funding package to assist the affected localities. Since many of the coastal lands

management activities supported by the Chesapeake Bay Preservation Act also help implement the Coastal Nonpoint Source (NPS) Program, some of the federal funding Virginia receives to support the Coastal NPS Program will be redirected to local projects.

Ten localities have been selected to receive approximately \$230,000, redirected from our FY 01 and FY 02 awards from NOAA. The projects proposed by these localities were chosen because they best met CBLAD's Bay Act compliance priorities, and also support coastal nonpoint pollution control best management practices.

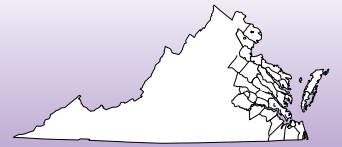
### LOCALITIES TO RECEIVE FUNDING

Accomack County  
Town of Cape Charles  
Charles City County  
Gloucester County  
Northern Neck PDC  
City of Newport News  
New Kent County  
Northampton County  
Stafford County  
Surry County

Funding will allow localities to address issues of priority within the locality, such as streambank and shoreline management, potable water, onsite wastewater treatment systems, farm conservation and timber harvesting; and, support local programs such as routine review of development plans for compliance with erosion and sediment control, stormwater, wetlands and environmentally sensitive lands criteria.

For more detail about the local projects to be funded, contact Margaret Reynolds at (804) 371-0608 or [mreynolds@cblad.state.va.us](mailto:mreynolds@cblad.state.va.us).





# MOA Signed for Multiple Benefits Conservation Plan

By Eric Walberg

The Southern Watershed Area (SWA), located in the cities of Chesapeake and Virginia Beach, contains extensive wetlands habitat. Development in the SWA has the potential to exacerbate fragmentation of the region's wetlands, diminishing the viability of this significant natural resource.

A Multiple Benefits Conservation Plan (MBCP) has been developed, as part of the Southern Watershed Area Management Plan (SWAMP), to

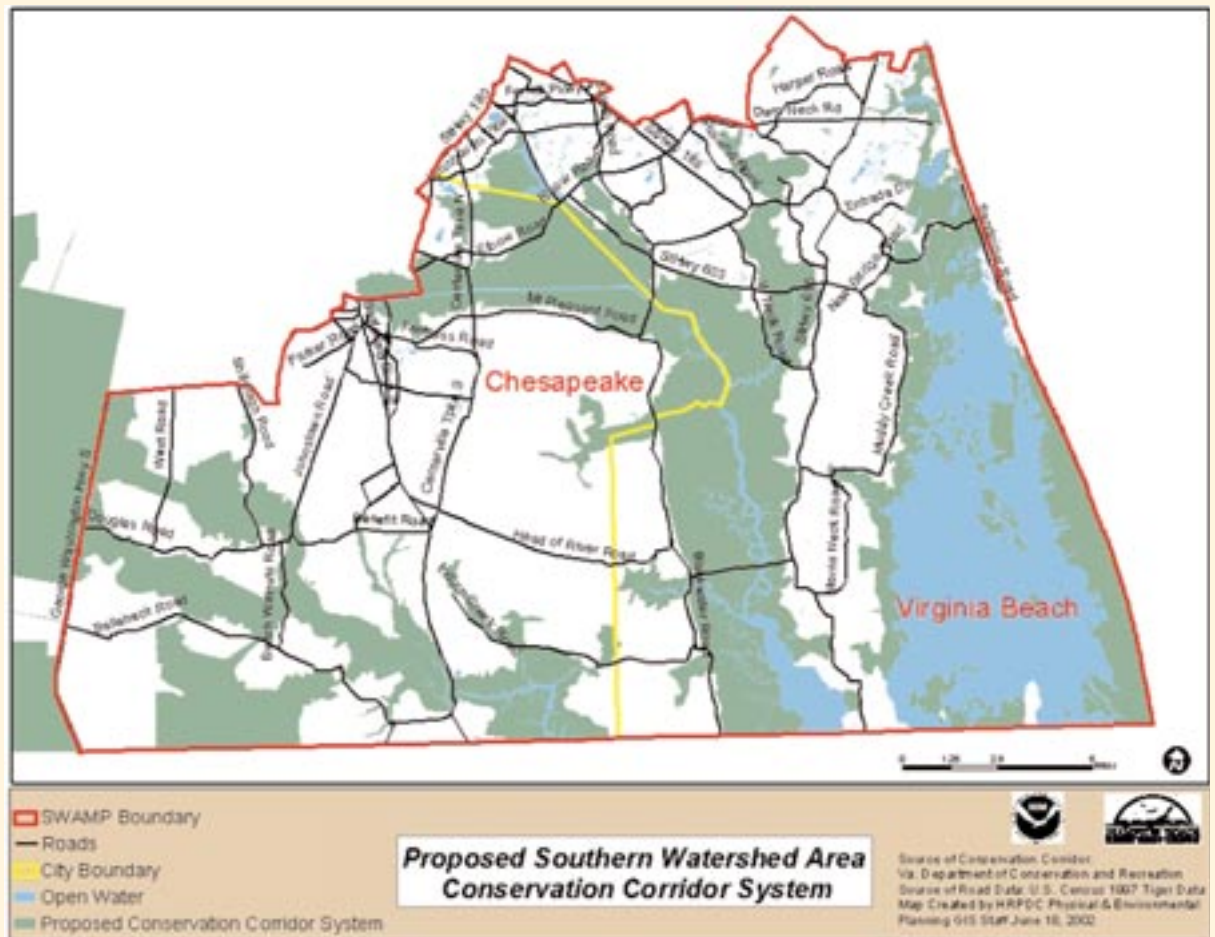
achieve multiple ecological benefits when identifying conservation lands in the SWA. To this end, a set of riparian-based conservation corridors for the SWA has been identified. Proper management of lands in these corridors will provide multiple benefits including, water quality protection, wildlife habitat enhancement, Natural Heritage Resource protection, opportunities for compatible recreational activities, nature-based tourism and environmental education, potential wetlands compensation capability, storm water management and groundwater recharge.

In order to put this plan into action, a Memorandum of Agreement (MOA) was signed by agencies involved in mitigation and wetland issues in the Southern Watershed Area. The MOA will improve interagency coordination and be implemented by the participating agencies through a Technical Advisory Committee (TAC) which consists of representatives from each signatory agency (see box). The TAC will be using a new methodology for selecting

lands within the corridor system as compensation sites for wetlands impacts that will aid in enhancing the conservation corridor system

## MOA SIGNATORY AGENCIES

Cities of Chesapeake and Virginia Beach  
Hampton Roads Planning District Commission  
Virginia Dare Soil and Water Conservation District  
Virginia Department of Conservation and Recreation  
Virginia Department of Environmental Quality  
Virginia Department of Game and Inland Fisheries  
Virginia Department of Transportation  
Virginia Marine Resources Commission  
US Natural Resources Conservation Service  
Army Corps of Engineers  
US Fish and Wildlife Service  
The Nature Conservancy



and will yield multiple benefits when used for compensation sites.

The TAC held its first meeting on August 9, 2002 and identified two initial tasks. The first task is the creation of a geographic information system coverage for the SWA that identifies existing and potential wetland mitigation sites. This information will help to minimize conflicts between wetlands mitigation and other programs such as the Virginia Beach Agricultural Reserve Program. Secondly, the TAC will use the major VDOT and local Capital Improvement Program projects that are scheduled for completion over the next few years in Chesapeake and Virginia Beach as test cases for the application of the multiple benefits approach to selection of compensation sites.

For more information on SWAMP, or the Multiple Benefits Conservation Plan, contact Eric Walberg, Hampton Road Planning District Commission at (757) 420-8300.

# Updating Our Coastal Program: Incorporating the New Virginia Nontidal Wetlands Program



By Ellen Gilinsky and Julie Bixby

Virginia's Coastal Program is known, in the national coastal resource management arena, as a networked program. What does this mean? Basically, it means that to manage Virginia's coastal resources, the Program relies not on a single centralized agency or entity, but on a network of state agencies and local governments (authorized by Executive Order). This network administers the enforceable laws and regulations that protect our wetlands, dunes, subaqueous lands, fisheries, and air and water quality (See sidebar on page 1). As with pieces in a puzzle, these laws and regulations fit together to form our Coastal Program.

To maintain an effective network, Virginia's Coastal Program is periodically updated to reflect changes made to coastal law and regulation. This process of updating the Program, if it is significant change, is referred to a *Program Amendment*. If it is a less significant change, it is referred to as a *Routine Program Change* (RPC). Because the laws and regulations *incorporated* into the Coastal Program are used for Federal Consistency determinations, this process is a crucial part of maintaining a strong Program and state agency participation in this RPC process is essential. (For more information on federal consistency, see page 13.) Incorporated programs are also eligible to receive funding support through a Virginia Coastal Program grant.

## Incorporation of New Nontidal Wetlands Program

The 2000 Session of the Virginia General Assembly passed legislation that established an independent Nontidal Wetlands Program at the Department of Environmental Quality (DEQ) through revisions to the existing Virginia Water Protection Permit (VWPP) Program. These changes will enable Virginia to better protect its wetlands. The original VWPP regulations were incorporated into the Virginia Coastal Program in 1993. Coastal Program staff is currently working with DEQ Water Program staff to submit these new regulatory changes to NOAA as a *Routine Program Change*; this will officially *incorporate* the Virginia Nontidal Wetlands Program into the Virginia Coastal Program.

Key changes in the legislation include the provision of additional jurisdiction over: excavation in all wetlands, impacts in isolated wetlands, filling or dumping, activities in a wetland that cause drainage or significantly alter or degrade existing wetland acreage or function, and permanent flooding or impounding. Exemptions from the new regulations are provided for normal agricultural and silvicultural activities, normal residential lawn and yard maintenance and use activities, and for isolated wetlands of minimal ecological value (IWOMEV). An IWOMEV is defined by regulation as an isolated wetland that has all of the following characteristics: less than one-tenth acre in size, not forested, does not have any federal or state listed threatened or endangered species, is not a special

## WHAT IS THE ROUTINE PROGRAM CHANGE PROCESS?

**RPC Package Preparation** – The Coastal Program prepares a package detailing and analyzing a change to regulations or statutes which are one of our core regulatory authorities.

**Package Submission** – The RPC package is submitted to NOAA and they have 30 days to respond.

**Public Notice** – A public notice is published requesting comments from the public within 30 days on our intent to incorporate these changes into the Coastal Program.

**Notification of Acceptance** – NOAA will notify the Coastal Program when the RPC package has been favorably reviewed.

**Public Notice** – Another public notice is posted stating that NOAA has accepted our changes and that Federal Consistency applies to the amended program as of the date of the NOAA notification.

community type such as a vernal pool, and is not located in a 100 year floodplain.

In the case of isolated wetlands, the Corps will continue to approve delineations and make the isolated wetland determination; however the Corps will now note on the confirmation that the applicant must seek a permit from DEQ for impacts to isolated wetlands. Since excavation in wetlands began being regulated by DEQ starting July 1, 2000, and other impacts in isolated wetlands starting October 1, 2001, we have seen a halt to Tulloch ditching and impacts to isolated wetlands with a permit in Virginia. We have also been able to require avoidance, minimization and compensation for impacts to these valuable wetlands.

The new regulations, which may be referenced on DEQ's Web site at [www.deq.state.va.us/wetlands](http://www.deq.state.va.us/wetlands), also detail how:

- the applicant must avoid and minimize impacts to wetlands to the extent practicable prior to considering compensatory mitigation;
- permits shall ensure that cumulative impacts to wetlands will not cause significant impairment of state waters or fish and wildlife resources;
- compensation must be sufficient to ensure no net loss of wetland acreage and functions.






***Clockwise from left to right: White Oak Swamp - Chickahominy River; forested headwater nontidal wetlands in York River drainage - Gloucester County; emergent nontidal wetland compensation site in Henrico County; Pickerel Weed—a typical nontidal wetland emergent plant. Photos courtesy of Virginia Water Protection Permit Program, DEQ.***

Acceptable forms of compensatory mitigation for unavoidable wetland impacts include: creation; restoration; purchase of mitigation bank credits; contribution to Approved In-Lieu Fee Fund (note that the Virginia Wetland Restoration Trust Fund, operated by The Nature Conservancy under supervision of the Norfolk District Corps, is currently the only such approved fund in Virginia); or preservation of wetland or upland buffers in combination with creation, restoration or purchase of bank credits.

While there have been many changes to the program, there is also much that stays the same. The VWP Permit still serves as Section 401 Certification of Section 404 Clean Water Act activities, including those for tidal impacts. The avoid-minimize-mitigate sequence still takes precedence. The Norfolk District Corps will still conduct pre-

application site visits and approve delineations. What is new is that DEQ can

now take permit action regardless of whether there is a Corps action; therefore the state can regulate all types of excavation in wetlands and activities in isolated wetlands through the VWP Permit process. DEQ now has general permits that will cover the majority of impacts to wetlands, thereby freeing up staff time to better inspect and enforce the permits we issue. Finally, DEQ no longer has the ability to waive the requirement for a permit, except for IWOMEVs and certain tidal impacts when they are covered by a Corps and VMRC permit.

For more information on the Virginia Water Protection Permit Program, contact Ellen Gilinsky, (804) 698- 4375. For more information on program changes, contact Shep Moon at (804) 698-4527 or Julie Bixby at (804) 698-4333. 

## Virginia's State of the Coast Report NOW AVAILABLE ON-LINE

Virginia's State of the Coast 2001 addresses five core areas of coastal management including: wildlife and fisheries, habitat, planning and development, water quality and public access and information. The report will be updated every two years as part of the Coastal Program's biennial review process, and be used to clarify coastal resource trends and management needs. Prepared by the Virginia Institute of Marine Science's Center for Coastal Resources Management with input from all of the Coastal Program member agencies and localities. Visit [www.deq.state.va.us/coastal/](http://www.deq.state.va.us/coastal/) for a copy of the report.

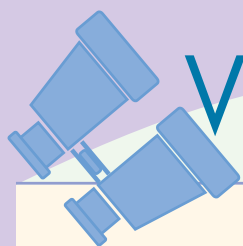
## Blue Crab Management

Editor's Note: In the last issue of Virginia Coastal Management, we highlighted the lifecycle of the Blue Crab, stressing that understanding this Bay creature's unique lifecycle is integral to effectively managing the population and fishery.

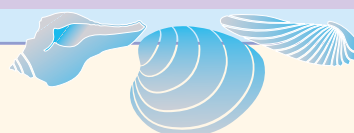


We invite you to visit the Virginia Marine Resources Commission Web site - [www.mrc.state.va.us](http://www.mrc.state.va.us) - for an update of the regulatory measures to be taken to protect this important resource. Also visit the Bay Journal on-line at [www.bayjournal.com/02-07/bluecrab.htm](http://www.bayjournal.com/02-07/bluecrab.htm) for the most recent in-depth review of current Blue Crab management measures.





# VISIT THESE PUBLIC ACCESS SITES



## Coastal Phase of Virginia Birding and Wildlife Trail Opens Roads to Riches

By Becky Wajda

On October 4, 2002, as birders converged for the 10th Annual Eastern Shore Birding Festival to celebrate the migration of songbirds and raptors, the Virginia Department of Game and Inland Fisheries (VDGIF) officially dedicated and opened the coastal phase of the Virginia Birding and Wildlife Trail. The trail was funded through grants from the Coastal Program and VDOT.



**Opening ceremony speakers:** Dan Haworth (Aide to Senator Nick Rerras), Virginia Delegate Bob Bloxom, Laura McKay, Joyce Holland (Eastern Shore Chamber of Commerce), Bill Woodfin (Director, DGIF) at podium, Jeff Southard (VDOT), Sherry Crumley (Game and Inland Fisheries Board), Rita McClenny (Virginia Tourism Corporation), David Whitehurst (DGIF). Photo by Dwight Dyke.

The ceremony, held at the Best Western Sunset Beach Hotel, marked the first major milestone in the completion of the statewide Trail to link wildlife viewing sites, from well-known world-class venues to lesser-known local gems. The Trail not only educates Virginians and visitors about wildlife conservation, it also provides recreational and economic development opportunities for coastal



**Samantha Pitts, a resident of the Eastern Shore, enjoys bird watching on a coastal loop of the new Virginia Birding and Wildlife Trail. The trail is identified by new signs featuring the Virginia Birding and Wildlife Trail logo. Photo by Dwight Dyke.**

communities. In 2001, nearly 50% of the U.S. population was spending time watching wildlife; 21.8 million birders who took trips away from home to watch wildlife spent more than \$8.1 billion on trip-related expenses; and, participation in birdwatching in the South increased 388% from 1982-2001.

The coastal region of Virginia, with its barrier islands, cypress swamps, great stands of forest, and salt marshes, will provide visitors with numerous opportunities to view birds, butterflies, snakes, turtles, dragonflies, dolphins and more. The Coastal Trail currently includes over 200 selected sites, arranged into 18 driving loops. While some loops are shorter than others, each is designed to facilitate travel and allow the visitor to fully experience the essence of the area.

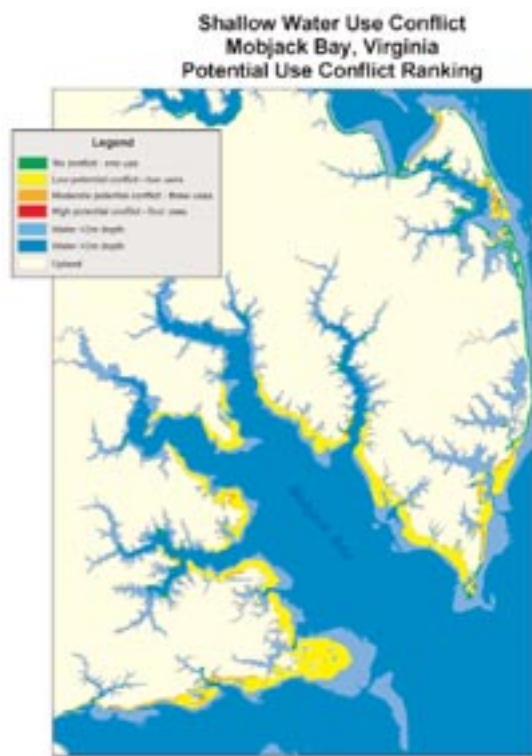
One of the most notable features of the Coastal Trail is its great diversity of sites. Several loops, such as Great Falls, Bull Run, and Richmond, include sites that are nestled in the heart of urban and suburban environments, reaffirming that outstanding wildlife viewing can occur in these settings. Other loops, like the Northern Neck and Mattaponi, cover

expanses of undeveloped, and often remote, lands, and fully immerse the visitor in the majesty of nature in coastal Virginia. Community support and local participation have been high throughout the development process. The 210 sites included in this phase of the Trail represent a great partnership between more

than 400 government agencies, organizations, businesses, communities, and citizens. While many of the sites are publicly owned, the Trail also includes a number of privately owned sites.

A 100-page trail guide, including detailed descriptions of sites and loops, maps, travel directions, and contact information is now available. Each site description includes a history, best season(s) to visit, special features, and possible side trips, while symbols indicate services and activities available at each site. For a free copy of the Coastal Birding and Wildlife Trail guide, please call 1-866-VABIRDS. All loop maps and site information are available on the Virginia Department of Game and Inland Fisheries Web site at [www.dgif.state.va.us](http://www.dgif.state.va.us).





Map by VIMS.

begin to eliminate it from locations where it threatens rare marsh species or relatively pristine marshes. We will also begin avian habitat enhancements that minimize threats from predators during nesting and fledging stages.

**Development of management tools such as a use suitability model, improved enforcement capabilities and public education efforts:**

A use suitability model is already under construction through a Coastal Program grant to VIMS. This model will be updated with information from the seaside GIS. The model will allow us to see where uses may conflict and to propose sensible alternatives for fair allocations of space within the seaside habitats. Research and development on aquaculture BMPs will also be undertaken. The VSHP partners will document and analyze problems with compliance and enforcement relative to fisheries regulations. The possibility of creating a position (e.g. ShoreKeeper or CoastKeeper) dedicated to seaside resource maintenance and enforcement issues will be examined. Public education efforts will focus on publications, Web sites, field trips and an annual Seaside Heritage Program Conference.

**Development of sustainable ecotourism opportunities through construction or enhancement of public access sites, creation of a canoe/kayak water trail and map, and an ecotour guide certification course.**

To encourage a growing interest by nature tourists attracted to the wealth of wildlife and spectacular vistas on the seaside, the VSHP partners will begin development of a Seaside Water Trail. The VSHP will also make improvements to public access sites along the seaside portion of the new, self-guided Birding and Wildlife Trail. Lastly, the VSHP will conduct an EcoTour Guide Certification course and develop a logo that can be displayed by all certified operators. 🦋



*Organized canoe and kayak trips led by certified ecotour guides can help protect sensitive coastal resources and stimulate the economies of rural coastal counties. Virginia Seaside Heritage Program Kick-Off attendees were offered a sampling of the kayaking opportunities on the Eastern Shore thanks to David Burden of Southeast Expeditions. Photo by Barry Truitt, TNC.*



# On a Steady Cruise: Virginia's Clean Marina Program

By Harrison Bresee



The Virginia Clean Marina Program continues to steam ahead in its effort to work with marinas to protect and improve water quality. Of the thirty marinas that have pledged to participate in the program since it began in January 2001, eleven have been designated and publicly recognized as a Virginia Clean Marina.

The 2nd Annual Virginia Clean Marina Awards Ceremony was hosted by York River Yacht Haven in Gloucester Point on September 9, 2002. Virginia Clean Marina and Environmental Excellence Awards were presented to Norfolk Yacht and Country Club, Belmont Bay Harbor, Aquia Harbour Marina, Smith Point Marina, Old Point Comfort, and York River Yacht Haven.

Each of these marinas has voluntarily met the minimum requirements of the Clean Marina Program by addressing environmental, safety and management criteria that go above and beyond what is legally required of a marina in the Commonwealth.

*What set these marinas apart and contributed to their Virginia Clean Marina status?*

## Aquia Harbour Marina in Stafford County

Aquia Harbour Marina, an older marina, has gone through numerous upgrades, giving staff the opportunity to integrate many of the recommendations made by the Virginia Clean Marina Program. For example, the marina has an annual training program for all new hires to ensure that they are all current on the rules and regulations of the marina. The bulletin board at Aquia Harbour is a communication gateway for boaters and provides environmental information on topics such as sewage, gray water and recycling. Environmental information is also distributed during Power Squadron and Yacht Club meetings. Marina management also sought the advice of the Woodstock of Aquia Garden Club before landscaping the marina grounds to be sure that the plants used are beneficial to wildlife.

## Belmont Bay Harbor in Woodbridge

Belmont Bay Harbor has not cut corners when it comes to educating their staff and boating public. The marina developed a comprehensive education program for its staff, training them to recognize and immediately report polluters to the manager. The marina has also raised the level of awareness about responsible boating by requiring each boat to receive an annual USCG Auxiliary Safety Inspection. Names of boaters who received a Safety Inspection are posted on the marina's bulletin board. Other actions were: posting environmental educational materials on their bulletin board; sending out environmental education materials to their customers; digitizing and emailing the marina newsletter to save paper; and, including environmental information, such as directions to oil and antifreeze recycling centers, in their newsletter.

## Old Point Comfort Marina in Hampton

Old Point Comfort Marina, located at historic Ft. Monroe, is the first military-owned marina to join the Clean Marina Program. The marina is operated in accordance with military and federal specifications and has looked to the Virginia Clean Marina Guidebook for guidance on improvements at the marina.

Old Point Comfort Marina's emergency plans are of the highest quality, and drills and staff training are performed regularly and with military precision. The marina also has a unique way of dealing with fish waste. The fish cleaning station includes trash receptacles for fish carcasses. When enough carcasses are collected, they are ground, mixed with menhaden oil, and sold as chum in the marina store. The marina's boat maintenance and power wash area is completely covered and provides a drainage and collection system for debris. A portable fire pump is maintained and staff is trained on its use. Boaters are educated on pollution, environmental awareness, and safety issues through a bulletin board, which includes a poster reminding smokers not to throw cigarette filters into the water. The poster provides individual filter trash bags. "I am a firm believer in leading by example. By being designated a Virginia Clean Marina, we are being presented with a great opportunity to set the standard for protecting the Bay from sources of nonpoint source pollution through implementation of Best Management Practices," states Old Point Comfort Marina Manager, Theresa Grogan.

## Smith Point Marina in Reedville

Smith Point Marina is currently undergoing a facelift and has sought guidance from the Virginia Clean Marina Program. A new bathhouse was constructed that includes ADA compliant facilities. The bathhouse is air-conditioned, is open on a 24-hour basis, and utilizes solar power for wintertime heating. The shoreline was cleared of overgrowth and trash, resulting in growth of aquatic vegetation and marsh grasses, which in turn provide erosion control for the marina. Emergency plans for coastal storms and natural disasters were developed and incorporated into a comprehensive training program for all staff. All dock lights were replaced with low energy fluorescent lighting. The fish cleaning house provides trash receptacles for fish carcasses ensuring that fish waste does not pollute the water.


## Norfolk Yacht and County Club

Norfolk Yacht and County Club addressed issues at their fueling station, supply room, and operations center. To help clean up small fuel spills, fuel absorbent pads were supplied to fuel dock attendants. To avoid large spills, break-away fittings were installed in the fuel hoses. An aluminum can recycling bin was installed at the marina. Stormwater and Spill Prevention plans were developed and a training schedule was implemented for the maintenance staff and summer dockhands.



## York River Yacht Haven

York River Yacht Haven worked extensively with the Virginia Clean Marina Program on their path towards designation. The first hurdle was receipt of a Stormwater Permit. The marina rerouted their pool backflow discharge and developed a Stormwater Management Pollution Prevention Plan, then updated their industrial machinery to comply with the marina's zero tolerance policy for pollution. The marina educates its customers about these advances and other environmental and safety issues through a regular newsletter and a bulletin board. The marina piloted an oyster aquaculture program, and designed a new floating dock system to grow oysters. The oysters help filter the marina's waters in Sarah's Creek. Almost 1 million oysters raised in the marina's hatchery have been donated to the Virginia Oys-

ter Heritage Program to seed newly constructed reefs. "We are excited to be an active part of the Virginia Clean Marina Program," states Dan Bacot, Jr., owner of the marina. "The program fills a niche that has been needed within the industry, and we look forward to working with the Clean Marina Program and its partners to find innovative ways to improve the environment." 

## Federal Consistency News



By Charles Ellis and Ellie Irons

The Federal Consistency Review Program has made significant strides since its last appearance in the *Virginia Coastal Program News* (Spring/Summer 2001). A few highlights follow.

The Federal Consistency Review Program is administered by the Department of Environmental Quality's Office of Environmental Impact Review (OEIR) in cooperation with the state agencies responsible for the enforceable and advisory policies of the Virginia Coastal Program. In 2001, OEIR completed a comprehensive Federal Consistency Information Package outlining this process. Copies of the package were distributed at the Coastal Partners Workshop in December 2001 during a half-day Federal Consistency Workshop on revised federal consistency regulations and Virginia's review procedure. Over 75 representatives of federal, state and local government agencies participated in the workshop.

In addition to coordinating federal consistency reviews (which include review of projects conducted by federal agencies as well as projects carried out by federal agency permit or grant applicants), OEIR staff perform environmental impact reviews of state and federal projects. However, consistency reviews require a significant portion of OEIR staff time. In 2001, OEIR reviewed over 150 federal activities in Virginia's designated coastal management area. Over 130 projects have been reviewed since January 1, 2002.

The consistency review process is an important tool in managing Virginia's coastal resources. In 2000, the process was strengthened by the official incorporation of the Chesapeake Bay Preservation Act (CBPA), administered by the Chesapeake Bay Local Assistance Department, into the Virginia Coastal Program. The CBPA is now considered an *Enforceable Program* (see article on page 1.)


In several cases over the past year, Virginia has used the consistency review process to ensure that the Chesapeake Bay Local Assistance Department and the affected locality were included in the review of proposed projects affecting Virginia's coastline. Inclusion of the CBPA as an Enforceable Program has enabled the OEIR to insist on provision of adequate information concerning impacts on coastal resources and uses. During recent reviews some proposed land uses were deemed inconsistent with Resource Protection Areas (RPAs). The regulations implementing the Chesapeake Bay Preservation

Act limit development in RPAs to water-dependent uses and redevelopment.

The proposed King William Reservoir in King William County provides an example of the significance of the federal consistency process. Prior to acting on a Section 404 permit application submitted for the project in 1994, the Corps of Engineers required preparation of an Environmental Impact Statement (EIS). Based on information generated during this EIS review, the Norfolk District issued a "Final Record of Decision" closing the environmental review process and denied the permit. Upon objection to the denial by Virginia's previous Governor, the Corps elevated the decision from its Norfolk District Office to its North Atlantic Division Office (NAD).

In 1999, the project applicant filed a consistency certification with OEIR at DEQ, asserting its finding that the project, if permitted by the Corps of Engineers, would be consistent with the Enforceable Programs of the Virginia Coastal Program. Upon review of the certification during Virginia's federal consistency review process, the Virginia Marine Resources Commission (MRC), which administers four of the enforceable programs of the Virginia Coastal Program, took note of the Corps' proposed denial of the federal permit. MRC made the decision to hold its own permit process in abeyance until the Corps reaches a final decision. MRC reasoned that there would be no point in carrying out the agency's own permit process for a project that might receive federal disapproval. DEQ, responding for the Commonwealth on the consistency review, indicated that there could be no conclusion as to the consistency of the project in these circumstances, and that DEQ would also await the NAD decision.

In October 2002, NAD issued its decision, finding that there was a need for the proposed reservoir and required resumption of the permit review process. NAD also required the resumption of the historic resources consultation process (section 106 of the National Historic Preservation Act), and stated that conditions arising from the federal consistency review process would be included in the Corps permit as special conditions.

For more information on federal consistency and environmental impact review, contact Ellie Irons, OIER Manager at (804) 698-4325 or [elirons@deq.state.va.us](mailto:elirons@deq.state.va.us). 

## Clean Boater Tip Sheet Available!

Get tips on containing trash, recycling, fueling cautiously, controlling oil, cleaning gently, pumpout use, disposal of fish waste, and protecting sensitive habitat. Call (804) 684-7768 for copies.

# As Oyster Reefs Grow, So Do Opportunities to Learn

By Virginia Witmer and Laura McKay



The partners in Virginia's Oyster Heritage Program (VOHP) have been hard at work the last three years constructing nine major reefs in the Rappahannock River, several in Tangier Sound, and others in Hampton Roads and on the seaside. These reef sanctuaries provide the substrate necessary for oyster settlement and growth. The VOHP has also focused on giving the population a jump start by seeding some of the reefs with hatchery-reared disease resistant oysters and oysters grown out by private oyster gardeners. For reef restoration sites and data, visit [www.deq.state.va.us/oysters](http://www.deq.state.va.us/oysters). As we

## Monitoring Oyster Survival on Varying Reef Surfaces

A new study by the Virginia Institute of Marine Science (VIMS), funded with \$125,312 from the Virginia Environmental Endowment and Virginia Oyster Heritage Foundation, will build on annual survey work done by the Virginia Marine Resources Commission. During the spring, summer and fall of 2003 and 2004, VIMS will conduct detailed surveys and research on six reefs of varying ages in varying locations. The study will focus on reefs constructed in 1993 and 1995 by VMRC, and new reefs constructed in the Rappahannock River by the Virginia Oyster Heritage Program.

"We will measure the size of the oysters on these reefs and pay particular attention to the presence of small, newly-recruited oysters in order to determine actual levels of recruitment to the reefs," explains the project manager, Dr. Mark Luckenbach, Director of the VIMS Eastern Shore Laboratory. "It is clear that even subtle differences in the size, shape, spatial orientation and complexity of the reef substrate, or architecture, can have dramatic effects on recruitment and survival of oysters."

The study will also continue to investigate the use of alternative substrates to construct reefs, such as surf clam shell, limestone marl, concrete and porcelain. Alternative materials may maximize the survival of newly recruited oysters on constructed reefs. Understanding the impact of using these materials becomes more critical as the supply of oyster shell for reef construction grows increasingly short. "We need to test whether or not the enhanced survival of young

oysters that we have observed with some substrates translates into greater numbers of oysters later in their life cycle when diseases begin to impact oyster populations," states Luckenbach.

Substrates other than shell could also reduce the competition oysters face from organisms that burrow into shell. Luckenbach will identify and enumerate the organisms attached to the shells, such as barnacles, sea squirts and boring sponge, all of which may be competing with oysters for space on the reefs. The condition of the reef substrate as well as the presence of competitors and predators will be used to infer the potential sources of mortality for small oysters. Luckenbach concludes that if the boring sponge is indeed found to be a problem because it competes for space and degrades the shell substance, as may be happening on older constructed reefs, we should be able to rectify the problem by creating oyster reef bases out of some other material not susceptible to boring by the sponge, such as limestone marl.



noted in the last issue of *Virginia Coastal Management*, monitoring and evaluating the success of these efforts in order to improve our restoration practices, is the next critical component of the VOHP. Another main element is educating the public about the importance of oyster reef ecology, and using volunteers in our restoration efforts to help build a sense of stewardship for our environment. In the next three sections, we highlight some recent activities addressing monitoring, education and volunteering. 🐚

The Virginia Coastal Program was selected as a semi-finalist for the prestigious **Innovation in American Government Award**, given by Harvard's Kennedy School of government, for creating the **Virginia Oyster Heritage Program**. The Innovations Awards recognize outstanding examples of creative problem solving in the public sector. The Virginia Oyster Heritage Program was among semifinalists selected from nearly 1,000 applicants.



## Oysters Modeling in Virginia Schools

Over the next two years, the Office of Environmental Education (OEE) at DEQ will work closely with two schools in Tidewater Virginia to develop and implement, "Oyster Model Schools," a model instructional program that uses estuarine and oyster reef ecology as an organizing theme for instruction.

"Teachers and building administrators provide the key to integrating the environment in the classroom curriculum. A single field trip or project may ignite an interest in the environment and instill a sense of awe in its participants, but it is the teacher who sustains and nurtures student interest and achievement," states Ann Regn, OEE Director. "Since teachers are the engine that drives the train, this plan emphasizes staff development."

The "Oyster Model Schools" project is funded with \$34,400 from the Virginia Environmental Endowment and the Virginia Oyster Reef Heritage Foundation. The project will establish an effective instructional model that demonstrates improvements in student achievement; implement an example of a "meaningful Bay and watershed experience" (to help meet a Chesapeake Bay Program Commitment); establish an advisory council of teachers and providers who can assess and promote the project; encourage more teachers to incorporate environmental education into their curricula; and, increase student knowledge of the Chesapeake Bay and oyster restoration goals.

One of the exercises that teachers and students might plan and implement is an oyster gardening project as a practical application of Chesapeake Bay science and investigation of a contemporary local issue. A ground breaking report prepared by the State Education and Environment Roundtable (SEER), titled "Closing the Achievement Gap: Using the Environment as an Integrating Context for Learning (EIC)" illustrates the effectiveness of using environmental education as a teaching tool. The nationwide study of 40 schools revealed that students who are involved in hands-on environmental learning demonstrate significantly increased academic performance, reduced discipline problems, and an increased enthusiasm for learning. The EIC process will be the basis for the "Oyster Model Schools" project.



## Smashing Porcelain, Volunteers Help Build Local Reef

A mountain of porcelain has reached its final destination in the Back River and is now a sanctuary oyster reef, placed to provide the substrate necessary for young oysters to settle, grow and become a broodstock oyster population. The many volunteers who helped build the porcelain sanctuary are optimistic that young oysters will respond to this newest of "welcome mats."



*Porcelain, broken and piled into reef structures in the Back River, awaits a donation of home-grown oysters. Photo courtesy of Hampton Roads Department of Public Works*

The porcelain – primarily consisting of new, but defective sinks and toilets – was destined for the new reef. The pile grew through donations in the spring of 2002. Delivery of the porcelain in June to the reef site was the culmination of a unique environmental partnership between local businesses, citizens, state agencies, the US Navy and US Air Force. Waste Management, Inc. (WMI) set aside temporary storage space in Bethel Landfill to receive delivery of the porcelain fixtures, donated by hundreds of plumbers, individuals and businesses, including Ferguson Enterprise Inc, TOTO, Peace Plumbing in Suffolk, and the Navy Amphibious Base. Volunteers from the Hampton Watershed Restoration Program then spent hundreds of hours breaking down the fixtures to shell-sized pieces and removing the non-porcelain plumbing. WMI transported the material to Langley Air Force Base. Once there, base staff worked with the Virginia Marine Resources Commission to place the porcelain pieces on the reef site, which is adjacent to a shell reef built in Back River in May 2001. "Broken porcelain is very similar to oyster shell in appearance and consistency. They are both made of calcium carbonate. This pilot reef will be monitored to determine how young oysters respond to this hard substrate as a solution to Virginia's dwindling oyster shell stock," explains Dr. James Wesson, Virginia Marine Resources Commission. According to Cheryl Copper, Public Works Environmental Relations Manager, excitement over the project was high. Many area households will grow oysters to add to the reef next year.



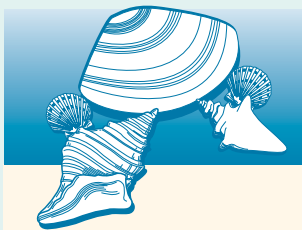
## National Academy of Sciences Studying Potential Impacts of Non-Native Oysters

The Virginia Coastal Program is one of several groups funding this \$310,000 National Academy of Science (NAS) which began in the summer of 2002. An 11-member panel of experts from across the US and France has been meeting with the funding agencies, scientists, government officials, watermen and seafood industry representatives throughout the summer and fall. Their mission is to prepare a report which identifies all of the ecological, economic and social risks and benefits of introducing or not introducing the non-native oyster, *Crassostrea ariakensis*. Their report is due by summer 2003. For more information, go to [www4.nationalacademies.org](http://www4.nationalacademies.org). Click on NAS, then "Current Projects", and then search on "Oysters".



*Crassostrea ariakensis grows rapidly and may be resistant to MSX and Dermo, diseases which devastate the native oyster. However, little is known about its potential impacts on Virginia's coastal ecosystems. Photo by Mary Madison, Watermen's Gazette.*





# COASTAL CLIPS & CONTRIBUTIONS

## Shep Moon Joins Coastal Program Office

**Shep Moon** recently joined the Coastal Program as a Coastal Planner. Shep comes to the Program from the Chesapeake Bay Local Assistance Department, and has worked in various capacities providing environmental planning assistance to Virginia localities since 1985.



*Photo by Virginia Witmer*

Shep is a graduate of Virginia Tech and Virginia Commonwealth University where he completed a Master's degree in Urban and Regional Planning.

As a new Coastal Planner, Shep will work on drafting policies to ensure the compatibility of coastal construction and other human activities with protection of nearby shore and water resources. Shep will also help manage various Coastal Program grants with a focus on projects related to wetlands and other sensitive shoreland features. In addition, he will work on updating the Coastal Program with new laws and regulations.

Shep can be reached at (804) 698-4527 or [hsmoon@deq.state.va.us](mailto:hsmoon@deq.state.va.us).

## Virginia to Host National Nonpoint Workshop

NOAA and EPA have requested that Virginia host a second national workshop for the Coastal Nonpoint Program.

In April 2002, Virginia hosted a workshop that focused on how states can address the conditions placed upon their programs.

Approximately 80 people attended, including program staff from U.S. Islands and Territories. During the upcoming workshop, EPA and NOAA want to clarify and better define the issues regarding implementation of a coastal nonpoint pollution control program.

Currently, there are twelve states with full program approval (including Virginia) and three to four in the final stages of achieving full approval. It is anticipated that the "Implementation" Workshop will occur in late April 2003. The Workshop Planning Committee will make a final decision on the location of the workshop in the next few months. For additional information please contact Mark Slauter at (804) 692-0839, [mslauter@dcr.state.va.us](mailto:mslauter@dcr.state.va.us), or Julie Bixby at (804) 698-4333, [jabixby@deq.state.va.us](mailto:jabixby@deq.state.va.us).

## Coastal Nonpoint Pollution Program Updates

**Marina Siting:** In 1999, staff from the Department of Conservation and Recreation (DCR) and the Department of Environmental Quality (DEQ) began drafting a project to develop a series of maps of tidal waters showing the suitability of an area for marina development. The project, completed by the Virginia Institute of Marine Science, is a visual representation of the Virginia Marine Resources Commission criteria for the siting of marinas or community facilities for boat mooring. The criteria consider the presence or absence of shellfish grounds, wetlands, endangered species, submerged vegetation, etc.

The mapped areas are represented in "blocks" which include 600 meters of linear shoreline, extend 200 meters out into the water, and 30 meters inland.

The maps enhance the planning process for locating marinas by identifying key issues in advance of development activities. Visit the Virginia Institute of Marine Science Web site at [www.vims.edu/ccrm/cci.htm](http://www.vims.edu/ccrm/cci.htm) for a full description of the project and to download the maps.

**Technical Standards and Procedures for Stream Reference Reach:** Local planners and environmental groups will soon have a new tool to help them identify and meet stream restoration goals and implement watershed management plans. The Coastal Nonpoint Program contracted with Virginia Commonwealth University to develop a methodology for identifying stream reference reaches.

Although there are existing approaches to this issue, none of them capture the physical, chemical, and biological characteristics of a stream in a unified manner.

A reference reach provides essential information about water quality, physical habitat, and the biological community present in a stream under stable or predisturbance conditions. This particular project focused on streams in central Virginia. A second year effort is currently underway and looks at streams in other parts of the coastal zone.

For additional information on either of these projects, contact Mark Slauter at [mslauter@dcr.state.va.us](mailto:mslauter@dcr.state.va.us).

*The Coastal Nonpoint Program is coordinated by the Virginia Department of Conservation and Recreation with funding from the Virginia Coastal Program at the Department of Environmental Quality.*

## NPS Pollution Watershed Assessment Report

DCR is in the process of finalizing this biennial report that presents information on nonpoint source pollution loadings within the approximately 500 small watersheds in Virginia. Historically, this report has been an important resource for targeting grant funding for reducing nonpoint sources of pollution from agriculture, forestry and urban land uses. The information is also included in the DEQ Water Quality Assessment 305(b) report. This most recent report has been expanded to include information pertaining to biological resources and nonpoint source water protection. For additional information please contact Rick Hill at [rhill@dcr.state.va.us](mailto:rhill@dcr.state.va.us).

## Friends of Virginia's Coast Receive Awards...



Photo by Virginia Witmer.

On October 31, Governor Mark Warner presented **Larry Minock** with the Commonwealth of Virginia 2002 Friend of the Bay Award.

The award reads: *"With gratitude and appreciation for activities undertaken to improve and enhance the natural resources of Virginia and the Chesapeake Bay. This award recognizes the expert coordination, insightful policy advice, and reliable dedica-*

*tion to the ideals of the Chesapeake Bay Program that have been the hallmarks of your steadfast service to the Commonwealth. Our best wishes for a long and rewarding retirement, and sincere thanks for a job well done."*

Larry was also instrumental in establishing Virginia's Coastal Program in 1986. Larry retired from DEQ last December after 25 years of service to Virginia's coastal resources. Thank you, Larry!



Photo by Virginia Witmer.

**Ann Regn** has been selected the Chesapeake Bay Foundation's 2002 "Environmental Educator of the Year." Ann was presented with her award on January 21 during a ceremony in D.C.

Will Baker, CBF president, praised Ann's career in environmental education stating: *"Certainly your work at DEQ's Office of Environmental Education and your more than 20 years of dedicated teaching and leadership in the field of environmental education more than make you*

*deserving of this award. Quite simply, you make environmental education part of the vernacular in Virginia."*

The Virginia Coastal Program is pleased to support Ann's exemplary work with annual grants for efforts such as Project Wet, oyster ecology, and migratory bird education. Congratulations, Ann!

Photo courtesy of CBNERRS.



**Bob Carroll**, the Reserve's new Marine Education and Outreach Coordinator expanded the education program at this past summer.

Highlights from the summer include: a 5-day Chesapeake Bay Conference for students sponsored by the Gloucester Courthouse Rotary Club; field trips with several Virginia Governors School summer programs; and the CBNERRVA / National Aquarium in Baltimore/ Morgan State University intern program, hands-on training for students and staff in the collection and use of environmental and biological data.

In addition to field-oriented programs, such as canoe field trips for middle and high school groups in York River State Park, the Reserve also offers a variety of in-school programs for schools located near the VIMS campus in Gloucester Point. The addition of a mobile canoe rig will allow the Reserve's Education Program to conduct field trips in local rivers and creeks in the Northern Neck and the Lower and Middle Peninsula beginning in the spring of 2003. Other new 2003 programs include oyster restoration workshops for teachers, and two week-long programs for high school students focusing on blue

## News From the Chesapeake Bay National Estuarine Research Reserve in Virginia...

crabs and the blue crab fishery in the Chesapeake Bay. Please contact Bob Carroll at bcarroll@vims.edu or 804-684-7526 for more information.

In July, **Dr. Ken Moore** joined the Reserve as its new Research Coordinator. Dr.



Photo courtesy of CBNERRS.

Moore received his Ph.D. from the University of Maryland and has been an Associate Professor of Marine Science at the VIMS School of Marine Science since 1984. Dr. Moore's studies

have focused on the ecology of aquatic angiosperms, especially seagrasses, and their relationship to water quality and other environmental factors. These studies range from physiological response of individual plants, to the ecosystem-level response of shallow water habitats in and outside the Bay using remotely sensed data. Dr. Moore is currently involved in the development and application of two and three-dimensional water quality mapping systems, conducting tests in nearshore and mid-channel regions of the York and James River as well as in embayments on Virginia's Eastern Shore. These systems can be used to comple-

ment the fixed-point monitoring now underway at the Reserve sites.

**Scott Lerberg**, a NOAA/NERRS Graduate Research Fellow and VIMS doctoral student, is currently investigating macrobenthic secondary production within tidal marsh and



Photo courtesy of CBNERRS.

the adjacent shallow water habitats. The overall goal of this proposed research project is to provide quantitative data on macrobenthic secondary production along a spatial gradient within a particular tidal marsh and between tidal marshes along an estuarine gradient. The project will provide important community and population level information on benthic invertebrates, an ecologically important trophic group. This work will also allow for the comparison between different intertidal benthic habitats, which will aid in modeling energy flows and food web pathways within tidal marsh ecosystems. In addition, macrofaunal secondary production could prove to be a new and useful measure to monitor and assess ecosystem change resulting from development and other activities on a watershed. 🐟



# The History Discovery Lab

Where visitors learn that historic sites are vital coastal resources

Good stewardship means conserving our natural, cultural, and historic resources. See the "History Under Water" gallery in our exhibition, *Solving History's Mysteries: The History Discovery Lab*, or go to our Web site at [www.dhr.state.va.us](http://www.dhr.state.va.us).

Exhibition at the Virginia Historical Society, 428 N. Boulevard, Richmond; operating hours: Monday-Saturday, 10 a.m. to 5 p.m.; Sunday, 1 to 5 p.m. Admission: \$5 adults, \$4 seniors, \$3 children and students. Free admission on Mondays. (804) 358-4901.

The Virginia Department of Historic Resources: Putting Virginia's History to Work

NOTE: The Department of Historic Resources received a Virginia Coastal Program grant to research and design the History Under Water exhibit.

**VIRGINIA COASTAL MANAGEMENT**  
**Virginia Coastal Resources Management Program**  
 Virginia Department of  
 Environmental Quality  
 P.O. Box 10009  
 Richmond, Virginia 23240



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